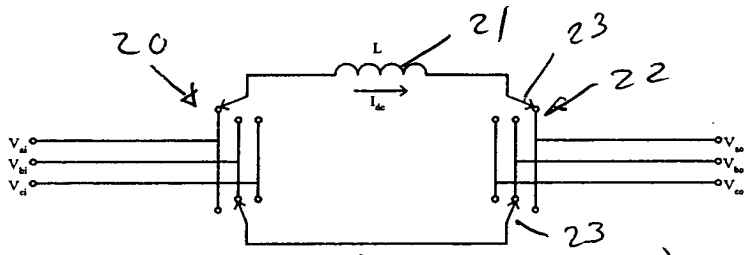

FIG. 1 (PRIOR ART)

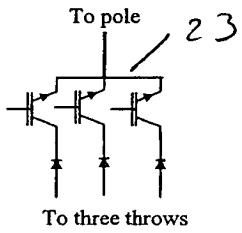

FIG. 2 (PRIOR ART)

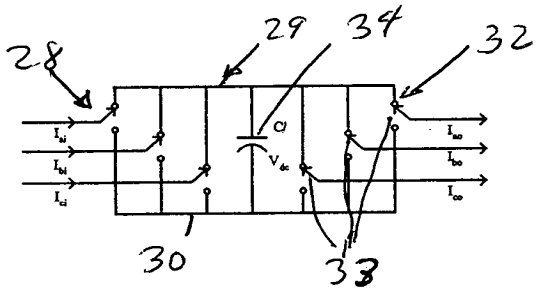

FIG. 3 (PRIOR ART)

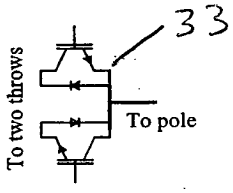

FIG. 4 (PRIOR ART)

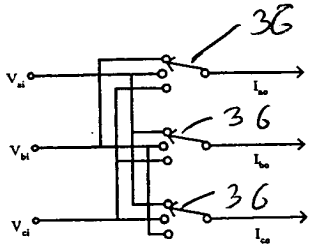

FIG. 5 (PRIOR ART)

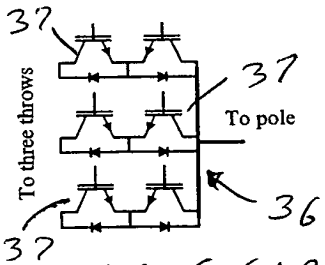

FIG. 6 (PRIOR ART)

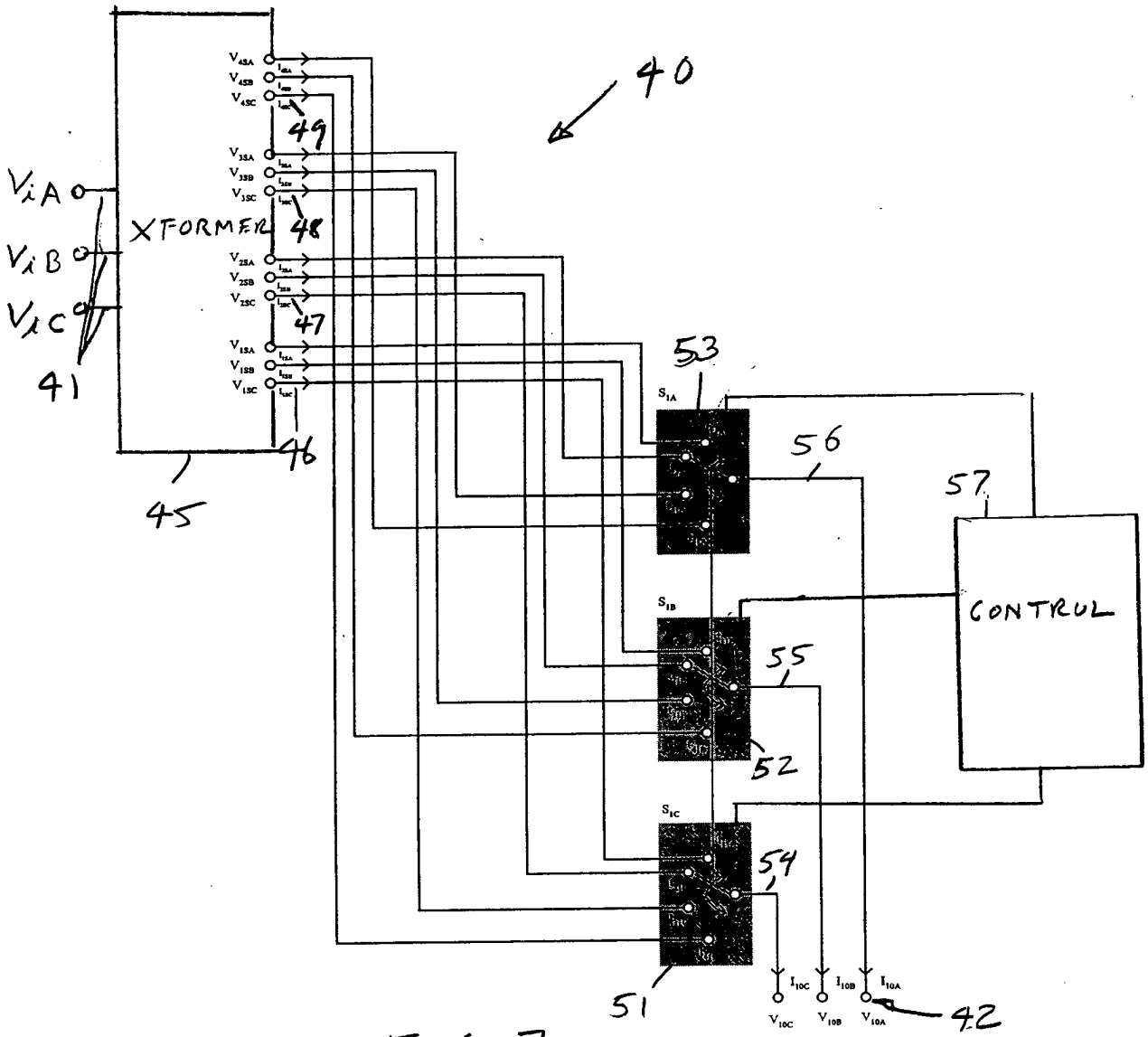
40
49
48
47
46
45
41
XFORMER
V_{iA}
V_{iB}
V_{iC}
53
56
57
CONTROL
55
52
54
51
42
I_{10C} I_{10B} I_{10A}
V_{10C} V_{10B} V_{10A}

FIG. 7

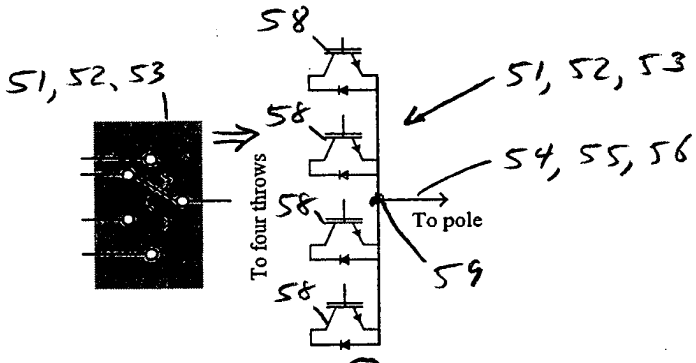
58
51, 52, 53
51, 52, 53
54, 55, 56
To four throws
To pole
59

FIG. 8

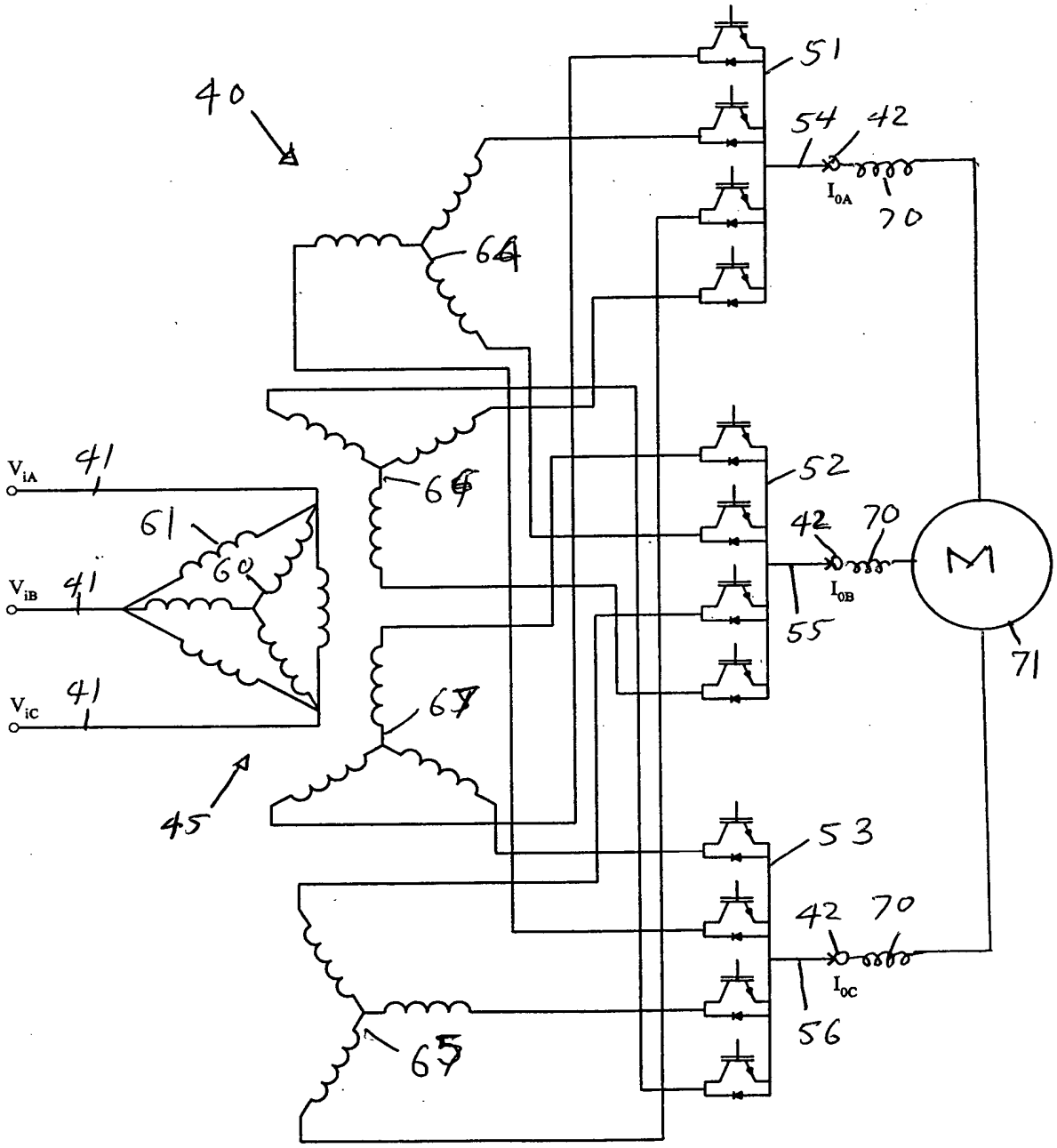
40
51
54
42
I_{0A}
70
64
V_{iA}
41
61
60
V_{iB}
41
V_{iC}
41
65
52
42
70
M
I_{0B}
55
71
67
45
53
42
70
I_{0C}
56
65

FIG. 9

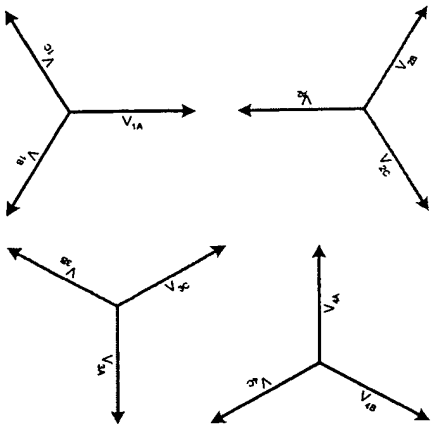

FIG. 10

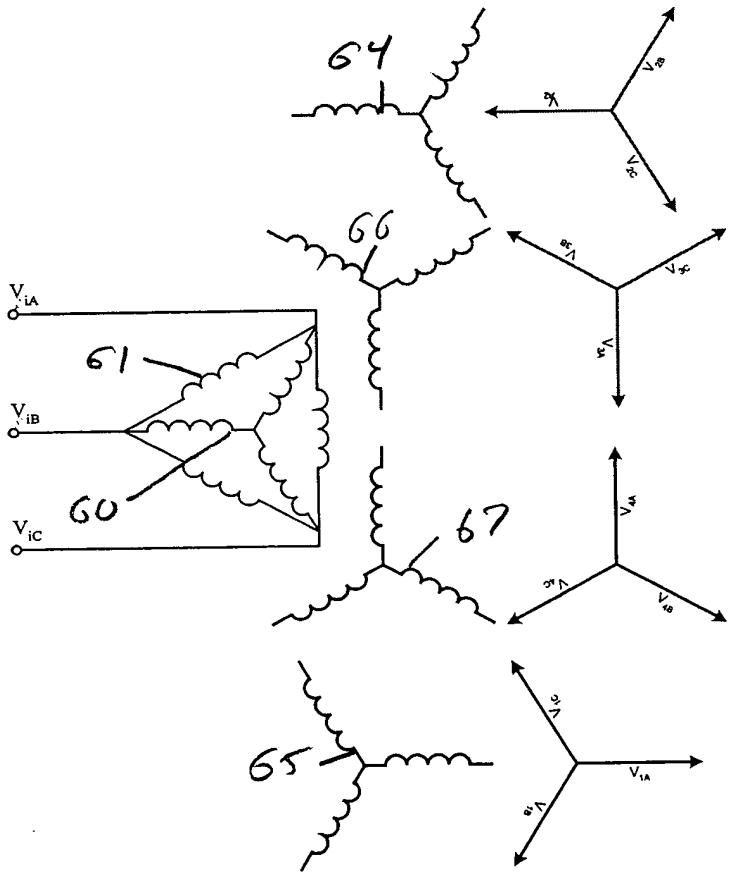

FIG. 11

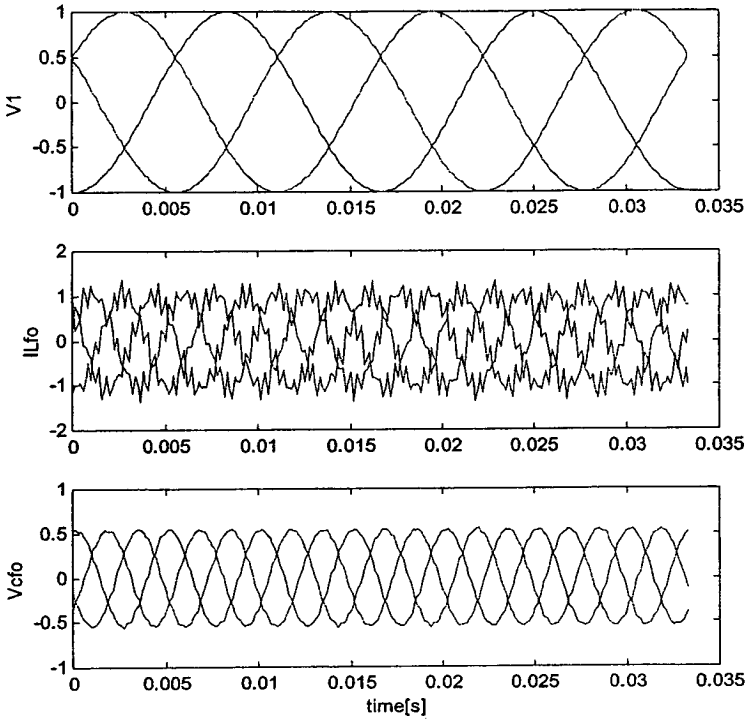

FIG. 12

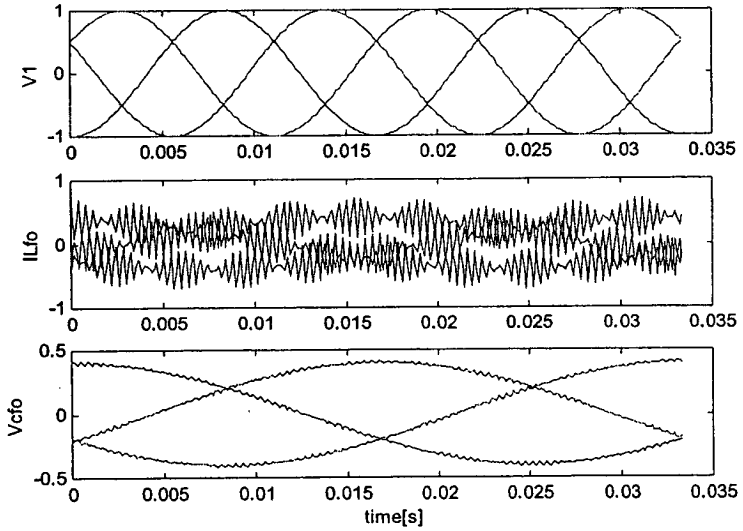

FIG. 13

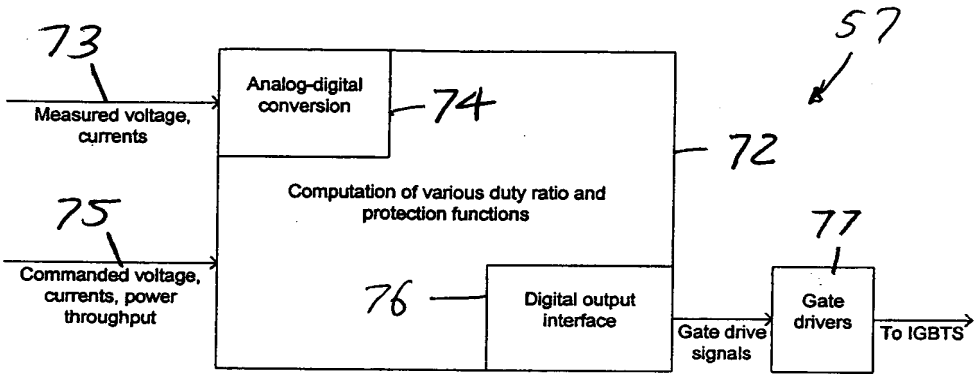
73
Measured voltage, currents
75
Commanded voltage, currents, power throughput
Analog-digital conversion
74
Computation of various duty ratio and protection functions
76
Digital output interface
72
57
77
Gate drive signals
Gate drivers
To IGBTS

FIG. 14

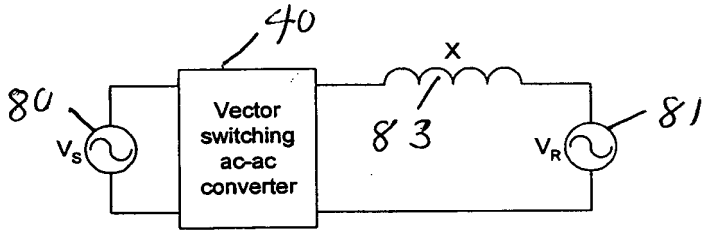
40
80
V_S
Vector switching ac-ac converter
X
83
V_R
81

FIG. 15

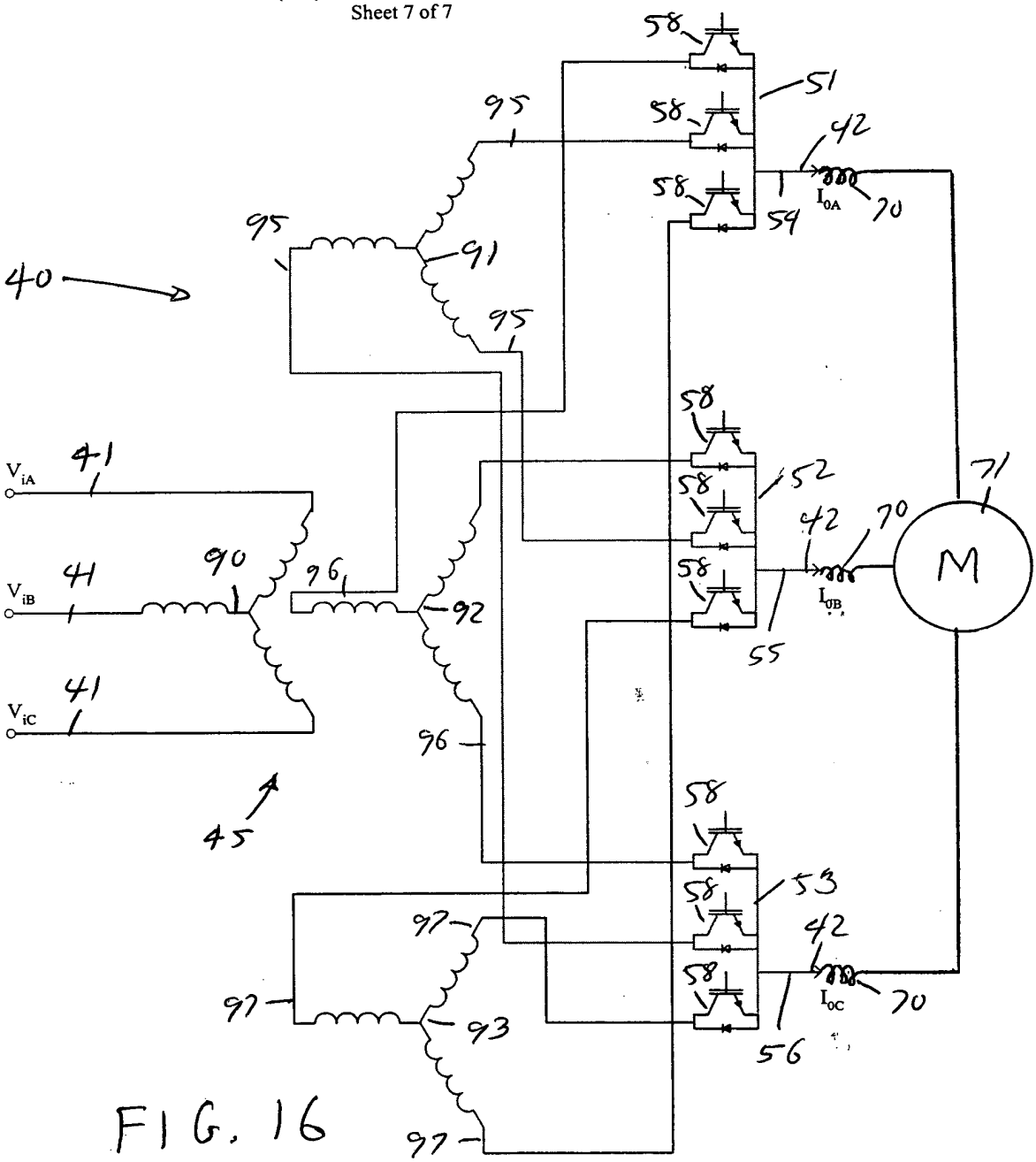

FIG. 16

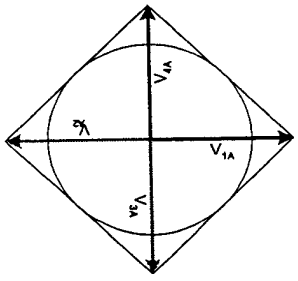

FIG. 17

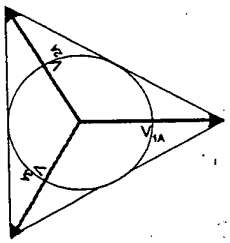

FIG. 18